AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Withdrawn) A method of treating a cancer in a mammal, comprising administering to a mammal afflicted with cancer an IL-21 polypeptide, variant, or fragment of either of the foregoing in an amount effective to treat the cancer in the mammal.

2. (Withdrawn) The method of claim 1, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises administering to the mammal a polynucleotide encoding the IL-21 polypeptide, variant, or fragment in an amount effective to treat the cancer in the mammal.

3. (Withdrawn) The method of claim 2, comprising administering an expression vector containing the polynucleotide.

4. (Withdrawn) The method according to claim 3, wherein the expression vector is pORF.

5. (Withdrawn) The method according to claim 1, wherein the cancer is a melanoma, a sarcoma, or a colon cancer.

6. (Cancelled).

7. (Cancelled).

8. (Withdrawn) The method according to claim 1, wherein the IL-21 polypeptide, variant, or fragment of either of the foregoing is co-administered with a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.

9. (Cancelled).

10. (Cancelled).

11. (Withdrawn) The method according to claim 8, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.

12. (Withdrawn) The method according to claim 8, wherein the cytokine is IL-2, IL-7, or IL-15.

13. (Withdrawn) The method according to claim 8, wherein the antigen-specific T lymphocyte is a tumor specific T lymphocyte.

14. (Withdrawn) A method of treating an immune-related disease in a mammal, comprising administering to a mammal afflicted with an immune-related disease an IL-21 polypeptide, variant, or fragment of either of the foregoing, in an amount effective to treat the immune-related disease in the mammal.

15. (Withdrawn) The method of claim 14, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises administering to the mammal a polynucleotide encoding the IL-21 polypeptide, variant, or fragment in an amount effective to treat the immune-related disease in the mammal.

16. (Withdrawn) The method of claim 15, comprising administering an expression vector containing the polynucleotide.

17. (Withdrawn) The method according to claim 16, wherein the expression vector is pORF.

18. (Withdrawn) A method of preventing a cancer in a mammal, comprising administering to a mammal an IL-21 polypeptide, variant, or fragment of either of the foregoing in an amount effective to prevent the cancer in the mammal.

19. (Withdrawn) The method of claim 18, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises administering to ~~a~~ the mammal a polynucleotide encoding the IL-21 polypeptide, variant, or fragment in an amount effective to prevent the cancer in the mammal.

20. (Withdrawn) The method of claim 19, comprising administering an expression vector containing the polynucleotide.

21. (Withdrawn) The method according to claim 20, wherein the expression vector is pORF.

22. (Withdrawn) The method according to claim 18, wherein the cancer is a melanoma, a sarcoma, or a colon cancer.

23. (Cancelled).

24. (Cancelled).

25. (Withdrawn) The method according to claim 18, wherein the IL-21 polypeptide, variant, or fragment of either of the foregoing is co-administered with a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.

26. (Cancelled).

27. (Cancelled).

28. (Withdrawn) The method according to claim 25, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.

29. (Withdrawn) The method according to claim 25, wherein the cytokine is IL-2, IL-7, or IL-15.

30. (Withdrawn) The method according to claim 25, wherein the antigen specific T lymphocyte is a tumor-specific T lymphocyte.

31. – 57. (Cancelled).

58. (Withdrawn) A method for inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with an amount of an IL-21 polypeptide, variant, or fragment of either of the foregoing, effective to induce apoptosis of the natural killer cell.

59. (Currently Amended) ~~The method of claim 58, wherein contacting the NK cell with an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises~~ A method of inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with a polynucleotide encoding ~~the IL-21 polypeptide~~ SEQ ID NO: 6 or 8, ~~variant, or fragment~~ in an amount effective to induce apoptosis of the NK cell.

60. (Withdrawn) A method of activating NK cell cytolytic activity, comprising contacting the NK cell with an amount of an IL-21 polypeptide, variant, or fragment of either of the foregoing, effective to activate NK cell cytolytic activity.

61. (Withdrawn) The method of claim 60, wherein the natural killer cell is *in vitro*.

62. (Withdrawn) The method of claim 60, wherein the natural killer cell is *in vivo*.

63. (Withdrawn) The method of claim 60, wherein contacting the NK cell with an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises contacting the NK cell with polynucleotide encoding the IL-21 polypeptide, variant or fragment, effective to activate NK cell cytolytic activity.

64. (Cancelled).

65. (Cancelled).

66. (New) A method of inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with a polynucleotide encoding a variant of SEQ ID NO: 6 or 8 in an amount effective to induce apoptosis of the NK cell, wherein the variant has an amino acid sequence that is greater than 95% identical to the amino acid sequence of SEQ ID NO: 6 or 8.

67. (New) A method inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with a polynucleotide encoding a fragment of about 5 to about 30 amino acids of SEQ ID NO: 6 or 8 in an amount effective to induce apoptosis of the NK cell, wherein the fragment retains the biological activity of SEQ ID NO: 6 or 8.